

Preston Primary School Science Curriculum (2020 onwards)

Intent

The 2014 national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific skills required to understand the uses and implications of science, today and for the future.

These aims are achieved through a skills-based focus, and pupils are encouraged to be inquisitive during Science sessions. Science also teaches children about our universe and promotes respect for the living and non-living. Science should be practical, and learning gained through hands on experience whenever possible. Children should develop curiosity in the world around them and become increasingly knowledgeable through experimenting and researching topics.

Throughout the programmes of study, the children acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. The Working Scientifically skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

Our aims:

To help children become interested in science and be inquisitive learners. They should be developing the following skills through a mainly practical and hands on approach

- The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.
- Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.
- Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.
- High levels of originality, imagination or innovation in the application of skills.
- The ability to undertake practical work in a variety of contexts, including fieldwork.
- A passion for science and its application in past, present and future technologies.
- Learning about a range of scientists, past and present, reflecting the diverse society children grow up in.

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Over the year, the following ways of working scientifically should be covered:

Asking questions	Observing and measuring (including measuring changes over time)
Planning and setting up different types of enquiries (including fair tests)	Identifying and classifying
Performing tests	Gathering and recording data/information (including research)
Using equipment	Reporting, presenting and communicating data/findings

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science. EYFS children will learn through a variety of teacher led, child led and practical experiences including visits to the Forest School. KS1 and KS2 children will receive 2 hours of Science lessons a week, with at least one hour being practically based, carrying out tests or experimenting with equipment.

- Science will be taught in planned and arranged topic blocks by the class teacher and where possible is linked to other topics being studied at the time
 - The children are given problem solving opportunities that allow them to apply their knowledge and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. Curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise, high level and where possible open-ended questioning in class to test conceptual knowledge and skills. Pupils are assessed during the term on their ability to work scientifically and at the end of the topic on their knowledge.
 - Knowledge and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
 - Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
 - Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.
 - Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
 - Regular events, such as Science Week or project days, such as Earth Day, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve people working in science-based jobs, families and the wider community.

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Impact

The result of a fun, engaging, high-quality science education, will be keen pupils, curious to find out more about their world, equipped with the skills to become future scientists. Our contacts with the local environment ensure that children learn through varied and first-hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum. Through various workshops, trips and interactions with experts, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science, as a result of our community links and Crest awards. By learning from and working with professionals during British Science Week, the children have access to positive role models within the field of science from the immediate and wider local community. From this exposure to a range of different scientists from various backgrounds, all children feel they are scientists and capable of achieving. Children enjoy science and this results in motivated learners with sound scientific understanding.